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ABSTRACT

A survey of 3,246 adolescents was conducted during mathematics classes in order to explore the influence of congruent family and classroom decision-making environments on student achievement, and to examine the extent to which home environments influence adolescents' perceptions of ideal decision-making opportunities in school. Opportunities to participate in decision-making at home had consistent positive effects on student mathematics- and school-related attitudes, mathematics grades, and general self-esteem. Such prerogatives in school had fewer, though still positive, effects. Students who had opportunities to participate in decision-making in one environment but not the other reported more positive attitudes than students without such opportunities in both environments. Students with few decision-making opportunities in both school and home reported the most negative attitudes, while those with such opportunities in both places reported the most positive attitudes. Findings are discussed in terms of possible compensatory effects of having decision-making prerogatives in one environment but not the other. Further studies are needed to identify factors contributing to students' beliefs about ideal decision-making environments in school. (MNS)

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FAMILY DECISION-MAKING, CLASSROOM DECISION-MAKING, AND STUDENT SELF- AND ACHIEVEMENT-RELATED ATTITUDES

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Introduction

Several lines of research show that adolescence is a time when children desire greater independence and opportunities to participate in making decisions that involve the self (e.g., Lee, Statuto, & Kedar-Voivodas, 1983). Studies on classroom decision-making have found that students who report fewer decision-making opportunities than they think they should have tend to express more negative achievement attitudes and values; these students also engage in greater school misbehavior as measured by teacher reports (Mac Iver, Reuman, & Klingel, 1986; Reuman, Mac Iver, Klingel, Midgley, Feldlaufer, & Hermalin, 1984). Research on family decision-making show that adolescents who participate in decision-making at home also express greater self-reliance, self-esteem, satisfaction with school and student-teacher relations, and more positive school adjustment (Epstein and McPartland, 1977; Isherwood and Hammah, 1981). Adolescents with such opportunities also favor a mastery orientation towards problem-solving in the classroom (Flanagan, 1985), and have higher GPA's and achievement test scores, and fewer days absent from school (TDR Associates, 1981).

Recent studies have extended these lines of research to explore the influence of congruent home and school environments on student achievement. Epstein and McPartland (1977) found that participation in family decision-making and participation in classroom decision-making each had positive effects on student personality and school coping skills. While they found no consistent interaction effects, they did find that family effects were stronger than those of classrooms. Further, Epstein (1982) found that

students who preferred decision-making opportunities benefitted most from participatory classroom environments, if they came from low participatory families. These findings suggest that the availability of such prerogatives in one environment may play a compensatory role when such opportunities are unavailable in another environment. These studies suggest that social environments that meet adolescents' emerging needs for independence and participation in decision-making may mitigate children's negativism and disenchantment during this developmental period.

The current study attempts to replicate Epstein and McPartland's findings regarding the influence of congruent home and school decision-making environments. Further, it explores the extent to which home environments influence adolescents' perceptions of ideal decision-making opportunities in school; that is, do adolescents who come from participatory families desire more decision-making prerogatives in school? Compared to students who come from less participatory families, are they more likely to perceive that classroom constraints should ideally be prerogatives? Compared to these students, are they less likely to perceive that classroom prerogatives should ideally be constraints? The following hypotheses are addressed in this study:

1. Students from high participatory families will report more positive self- and school-related attitudes than students from low participatory families.

2. Students from high participatory classrooms will report more positive

self- and school-related attitudes than students from low participatory classrooms.

3. Students from high participatory families and high participatory classrooms will report more positive self- and school-related attitudes than students who have high levels of decision-making prerogatives in only one of these environments.

4. Students who have high levels of decision-making opportunities in one environment but not the other will report more positive self- and school-related attitudes than students who have low levels of decision-making prerogatives in both environments.

5. Students from high participatory families will desire greater decision-making prerogatives in the classroom.

6. Students from high participatory families will be more likely to report that classroom constraints should ideally be prerogatives.

7. Students from high participatory families will be less likely to report that classroom prerogatives should ideally be constraints.

Methods

Sample

The data presented in this paper were collected as part of a 4-wave panel study concerning the effects of the transition from elementary to junior high school on early adolescents' achievement-related self-concepts

and behaviors. Analyses reported in this paper include data collected during the first two waves of this study, namely the fall and spring of the 1983-84 school year. Altogether 3246 students participated in this study. These students were recruited from 12 school districts representing low- to middle-income communities in southeastern Michigan.

Procedures

Students were administered a questionnaire containing a broad array of items concerning self- and task-related perceptions and values, and perceptions of their home and classroom environments. Analyses of variance or Pearson product moment correlations were used as appropriate to investigate the hypotheses of this study. The following independent and dependent measures are used.

Independent Measures

Perceptions of Actual Family Decision-Making. Student reports of decision-making opportunities at home were measured by two items (one 3-point item and one 4-point item) adapted from Epstein and McPartland (1977). These items ask students how decisions are generally made between them and their parents, and how much they take part in making decisions at home. These items were summed to create an Actual Family Decision-Making score (alpha=0.46). High scores reflect greater perceived opportunities to participate in family decision-making (range=2-7, median=5). Family Decision-Making scores were split at the median to create subgroups of students with high and low perceived levels of decision-making opportunities

at home. Numbers of students in each subgroup is shown in Table 1.

INSERT TABLE 1 HERE

Perceptions of Actual Classroom Decision-Making. Student reports of decision-making opportunities in the classroom were measured by 5 dichotomous items adapted from Lee (1979). These items ask students about their perceptions of actual decision-making opportunities regarding where they sit in math class, how much math homework they receive, what math they work on during class, what the rules are in their classroom, and what is done in class after they finish math work. These items were summed to create an Actual Classroom Decision-Making score (KR20=0.24). High scores reflect greater perceived opportunities to participate in decision-making in the math classroom (range 5-10, median=6). Actual Classroom Decision-Making scores were split at the median to create subgroups of students with high and low perceived levels of decision-making opportunities in the math classroom. Numbers of students in each subgroup is shown in Table 2.

INSERT TABLE 2 HERE

Dependent Measures

Perceptions of Ideal Classroom Decision-Making (Math Classroom). Student preference for decision-making opportunities in the classroom was measured by 5 dichotomous items adapted from Lee (1979). These items ask students about their preferences for decision-making opportunities regarding where they sit in math class, how much math homework they receive, what math they work on during class, what the rules are in their classroom, and what is done in class after they finish math work. These items were summed to create an Ideal Classroom Decision-Making score (KR20=0.63). High scores reflect greater personal preference for decision-making opportunities in the math classroom (range 5-10).

Personal Preference for Classroom Decision-Making (General School). Student preference for decision-making opportunities in the classroom was also assessed by two 4-point Likert-type items developed by Harter (1982). These items are not restricted to the math classroom in particular. Instead they ask students about the extent to which they believe either students or teachers should have more say in the classroom. These items were first recoded so that high scores reflect greater personal preference for classroom decision-making, and then summed to create a Personal Preference for Classroom Decision-Making score (alpha=0.60, range 2-8). Personal Preference is highly correlated with student views of Ideal Classroom Decision-Making ($r=0.45$, $N=3015$, $p<.0001$)

Actual Constraints/Ideal Prerogatives. Adapted from Lee (1979), this measure is a count of the number of instances in which students reported that classroom constraints should ideally be prerogatives .

Actual Prerogatives/Ideal Constraints. Also adapted from Lee (1979), this measure is a count of the number of instances in which students reported that classroom prerogatives should ideally be constraints.

Math- and School-Related Attitudes, Affects, Values, and Behaviors were created with unit-weighted summated composites. These composites measure self-concept of math ability, expectancies for success in math, valuing of math, interest in math, liking of school, reasons for coming to school. Details about these composites may be found in Eccles (Parsons), (1980), Eccles et al. (1983) and Mac Iver, Klingel, and Reuman (1986).

Self-Esteem. Student self-esteem was measured by five 4-point Likert-type items developed by Harter (1982). These items were recoded so that high scores reflect high self-regard, and then summed to create a Self-Esteem score (alpha=0.64).

Results

Table 3 shows the effects of home and school decision-making environments on students math- and school-related perceptions, values, and behaviors. There were significant main effects, but few interaction effects: the interaction effects will not be discussed in this paper. Decision-making opportunities at home had consistent significant positive effects on student math-related beliefs and values, and general self-esteem. Students from participatory families report that they are more able in math, that they expect to do well in math, that math is not difficult, and that math is useful and interesting. These students spend more free time on math

activities, worry less about math performance, and achieve higher math grades. Further, they express greater feelings of self-worth. Decision-making opportunities at home was also positively related to liking of school. Students from participatory families are more likely to report that they like school and less likely to report that they come to school because they have to.

INSERT TABLE 3 HERE

Decision-making opportunities in the math classroom had fewer significant effects on student math-related beliefs and values. Students from participatory math classrooms are more likely to report that they expect to do well in math, and that math is interesting. These students are more likely to spend free time on math activities, and achieve higher math grades. Decision-making opportunities in the math classroom was positively related to liking school. Students from participatory classrooms are more likely to report that they like school and less likely to report that they come to school because they have to.

INSERT TABLE 4 HERE

Table 4 shows mean scores on math- and school-related perceptions and

behaviors reported by four groups of students: two levels of family decision-making (high and low participatory) crossed with two levels of classroom decision-making (high and low participatory). Opportunities to participate in decision-making in both home and math classrooms (HH) was associated with the most positive math- and school-related attitudes, and higher math grades and self-esteem. In contrast students reporting relatively few decision-making opportunities in both home and math classrooms (LL) report the most negative math- and school-related attitudes, and lower math grades and self-esteem. Students who perceive some decision-making prerogatives in one environment but not the other (HL or LH) tended to report intermediate levels of math- and school-related attitudes, math grades and general self-esteem.

INSERT TABLE 5 HERE

Table 5 shows correlations between student perceptions of family decision-making and student preferences for decision-making opportunities in the classroom, and student views about actual classroom constraints and prerogatives. Decision-making opportunities at home were not related to preference for decision-making prerogatives either in math classrooms or in school in general. Further, participation in family decision-making was not related to reports that classroom constraints should ideally be prerogatives. Participatory family decision-making was also not related to

reports that classroom prerogatives should ideally be constraints.

Summary and Discussion

Opportunities to participate in decision-making at home had consistent positive effects on student math- and school-related attitudes, math grades, and general self-esteem. Such prerogatives in school had fewer, though still positive, effects. These findings replicate those of Epstein and McPartland (1977). These investigators found that participation in family decision-making and participation in classroom decision-making each had positive effects on student personality and school coping skills; however, family effects were stronger than those of classrooms. These findings suggest that participation in family decision-making may have stronger and more pervasive effects on the developing child's attitudes towards the self and tasks which s/he must face. This conclusion receives support from past research in math achievement which shows that children's math attitudes and self-concept are more strongly influenced by parents than teachers (Eccles, Adler, & Kaczala, 1982; Jayaratne, 1983).

Students who receive opportunities to participate in decision-making in one environment but not the other report more positive attitudes than students without such opportunities in both environments. This finding agrees with those of Epstein (1982), who found that students who preferred decision-making opportunities benefitted most from participatory classroom environments, if they came from low participatory families. These findings suggest that the availability of such prerogatives in one environment may

play a compensatory role when such opportunities are unavailable in another environment. Students without such opportunities in both school and home report the most negative attitudes. Those with such opportunities in both school and home report the most positive attitudes.

Opportunities to participate in decision-making in math classrooms was related to students' general attitudes about school. While we might not expect students' experiences in one classroom to have such a generalizing effect, this finding seems less surprising when we consider that students in elementary school typically have one teacher for all subjects. Therefore, a student's decision-making experiences during math hour may reflect general teacher practices throughout the school day. This explanation suggests that the relation between classroom decision-making and general school attitudes will be weaker among junior high school students because they will experience a variety of decision-making practices from a variety of teachers during the school day.

Opportunities to participate in decision-making at home did not affect students' personal preferences for decision-making prerogatives in school. Participation in family decision-making was also unrelated to beliefs that classroom constraints should ideally be prerogatives, and unrelated to beliefs that classroom prerogatives should ideally be constraints. This finding was surprising. The lack of a correlation between family decision-making and ideal classroom decision-making may be a result of dissimilar items used to assess decision-making in the two environments. Items to assess family decision-making inquired about the extent to which

children and parents participated in decision-making together. In contrast items about classroom decision-making asked about preferences for having a say in various specific activities in the math classroom. However, we also found no correlation between family decision-making and personal preference for decision-making in school in general where items to assess the latter construct were equally as general as those used to assess family decision-making. Further research is needed to identify those factors which contribute to children's beliefs about ideal decision-making opportunities in school. It may be that students' beliefs about ideal classroom decision-making structures are more informed by their previous experiences with decision-making in other classroom settings.

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Table 1

Actual Family Decision-Making

	Low Participatory Family	High Participatory Family
(N=3142)	2081	1061
	(66.2%)	(33.8%)

Table 2

Actual Classroom Decision-Making

	Low Participatory Classroom	High Participatory Classroom
(N=3184)	1605	1579
	(50.4%)	(49.6%)

Table 3

Main effects of Family Decision-Making and Classroom Decision-Making on Students' Attitudes about Math, School, and Self

Dependent measures	Family Decision-Making	Classroom Decision-Making
Math self-concept	H>L **	--
Math expectancies	H>L ****	H>L *
Math task difficulty	L>H **	--
Math utility value	H>L ****	--
Math intrinsic value	H>L **	H>L ***
Free time on math	H>L ***	H>L **
Math worry	L>H **	--
Math test anxiety	--	--
Somatic signs	--	--
Year-end Math Grades	H>L **	H>L **
Like school	H>L ****	H>L ***
Reason come: Friends	--	--
Reason come: Activities	--	H>L *
Reason come: Sports	--	H>L *
Reason come: Have to	L>H ****	L>H *
General Self-Esteem	H>L ****	--

Note: Asterisks are p-values for F-statistics derived from a 2X2 ANOVA (Family Decision-Making X Classroom Decision-Making)

L=Low Perceived Decision-Making Opportunities
H=High Perceived Decision-Making Opportunities

* $p<.05$
** $p<.01$
*** $p<.001$
**** $p<.0001$

Table 4

Mean Scores of Family Decision-Making and Classroom Decision-Making Subgroups on Students' Attitudes about Math, School, and Self

	LL[1]	HL[1]	LH[1]	HH[1]
Math self-concept	15.04	15.45	15.22	15.69
Math expectancies	10.94	11.26	11.01	11.59
Math task difficulty	10.70	10.48	10.80	10.20
Math utility value	29.76	30.61	29.78	30.92
Math intrinsic value	15.18	15.63	15.78	16.38
Free time on math	7.83	8.19	8.07	8.53
Math worry	8.67	8.27	8.48	8.14
Math test anxiety	10.78	10.70	10.60	10.20
Somatic signs	8.54	8.20	8.53	8.14
Year-end Math Grades	9.12	9.52	9.54	9.78
Like school	5.11	5.43	5.31	5.70
Reason come: Friends	4.12	4.21	4.24	4.34
Reason come: Activities	3.94	3.93	4.03	4.24
Reason come: Sports	3.77	3.82	3.94	3.99
Reason come: Have to	5.11	4.63	4.87	4.54
General Self-Esteem	13.82	14.68	13.76	14.70

[1]Note: First letter refers to Family Decision-Making.
Second letter refers to Classroom Decision-Making.
L=Low Perceived Decision-Making Opportunities
H=High Perceived Decision-Making Opportunities

Table 5

Correlations between Family Decision-Making and Student Beliefs about Classroom Decision-Making

	Participatory Family Decision-Making
Ideal Classroom Decision-Making (Math)	.06
Personal Preference (General)	.03
Actual Constraints/Ideal Prerogatives	-.02
Actual Prerogatives/Ideal Constraints	-.05